



BEAM LEAD SCHOTTKY BARRIER MIXER DIODES

ASI's Beam Lead Schottky Barrier Mixer Diodes are manufactured by the deposition of a suitable barrier metal on an epitaxial silicon layer to form a junction. These diodes are designed for applications up to 40 GHz for microwave integrated circuits and hybrid elements in stripline and microstrip circuitry.

Several barrier heights are available which include:

LOW BARRIER (N-TYPE) - for applications where the local oscillator drive level is between -10dBm and +10dBm

MEDIUM BARRIER (N-TYPE) - for applications where the local oscillator drive level is between -5dBm and +15dBm

HIGH BARRIER (N-TYPE) - for applications where the local oscillator drive level is between 0dBm and +20dBm

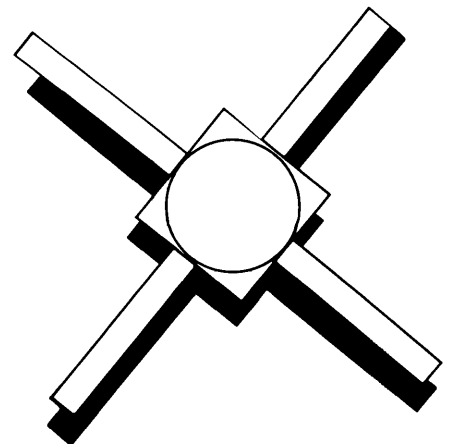
LOW BARRIER (P-TYPE) - for applications where low 1/f noise for use in Doppler radar and motion detectors is required.

The Beam Lead Diodes are available as monolithic devices or mounted in a wide variety of epoxy lead frames and hermetically sealed packages.

All of the Beam Lead Schottky Barrier Mixer Diodes meet or exceed the Military Environmental Specifications of MIL-S-19500 and Methods from MIL-STD-750 and/or customer specifications.

ABSOLUTE MAXIMUM RATINGS:

Storage Temperature:	-65°C to +175°C
Operating Temperature:	-65°C to +150°C
RF CW Power (incident):	75mW
Beam Terminal Strength:	4 grams minimum



ADVSS011

LOW BARRIER (N-TYPE)

FREQUENCY	TYPE NUMBER	N _F (dB) MAX	C _J @ OV (pF)		V _F @ 1mA (mV)		V _B @ 10 μ A (V) MIN	R _S @ 10mA (OHMS) MAX
			MIN	MAX	MIN	MAX		
S	ABL3001	6.0	0.30	0.50	225	300	2.0	3
S	ABL3002	6.5	0.30	0.50	225	300	2.0	7
X	ABL9001	6.5	0.15	0.30	250	325	2.0	7
X	ABL9002	7.0	0.15	0.30	250	325	2.0	12
K μ	ABL1601	7.5	0.05	0.15	275	350	2.0	16
K μ	ABL1602	8.0	0.05	0.15	275	350	2.0	25

MEDIUM BARRIER (N-TYPE)

FREQUENCY	TYPE NUMBER	N _F (dB) MAX	C _J @ OV (pF)		V _F @ 1mA (mV)		V _B @ 10 μ A (V) MIN	R _S @ 10mA (OHMS) MAX
			MIN	MAX	MIN	MAX		
S	ABM3001	6.0	0.30	0.50	300	400	3.0	4
X	ABM9001	6.5	0.15	0.30	325	425	3.0	10
K μ	ABM1601	7.5	0.05	0.15	350	450	3.0	16

HIGH BARRIER (N-TYPE)

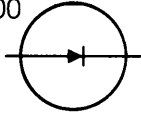
FREQUENCY	TYPE NUMBER	N _F (dB) MAX	C _J @ OV (pF)		V _F @ 1mA (mV)		V _B @ 10 μ A (V) MIN	R _S @ 10mA (OHMS) MAX
			MIN	MAX	MIN	MAX		
S	ABH3001	6.0	0.30	0.50	550	625	4.0	4
X	ABH9001	6.5	0.15	0.30	550	650	5.0	10
K μ	ABH1601	7.5	0.05	0.15	600	750	5.0	13

LOW BARRIER (P-TYPE)

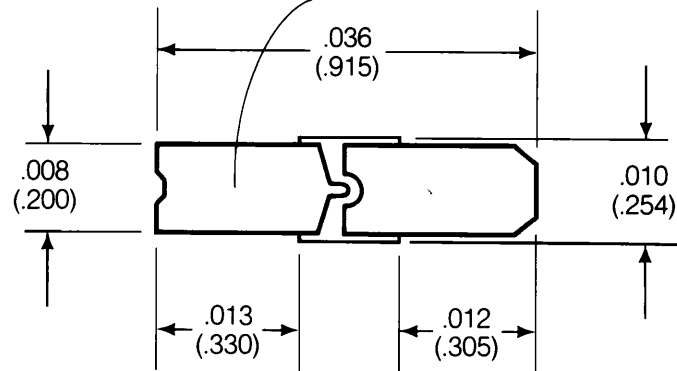
FREQUENCY	TYPE NUMBER	N _F (dB) MAX	C _J @ OV (pF)		V _F @ 1mA (mV)		V _B @ 10 μ A (V) MIN	R _S @ 10mA (OHMS) MAX
			MIN	MAX	MIN	MAX		
X	ABP9001	6.5	0.15	0.30	200	300	2.0	12
X	ABP9002	7.0	0.15	0.30	200	300	2.0	18
K μ	ABP1601	7.5	0.05	0.15	200	350	2.0	16
K μ	ABP1602	8.0	0.05	0.15	200	350	2.0	25

PACKAGE STYLES

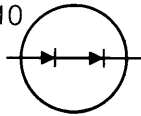
STYLE 700



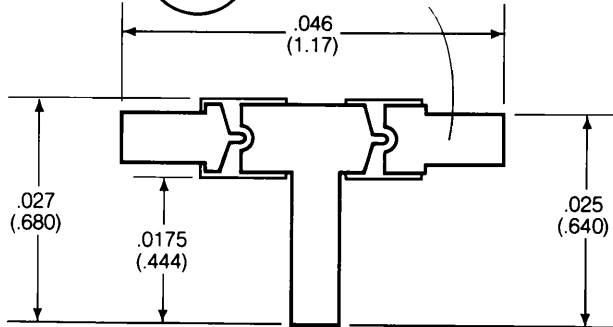
BEAM THICKNESS:
 $.0015 \pm .00004$
 $(.004 \pm .001)$



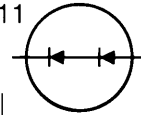
STYLE 710



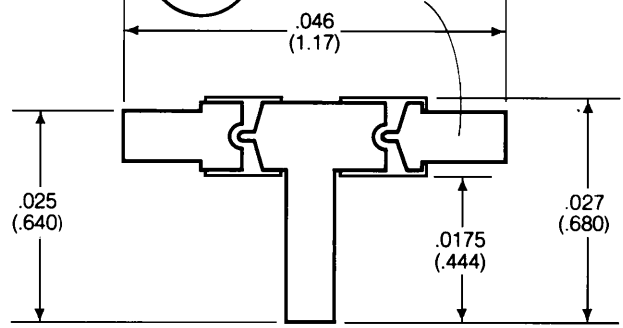
BEAM THICKNESS:
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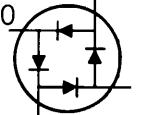
STYLE 711



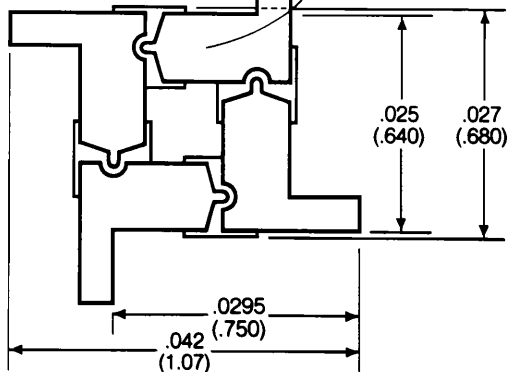
BEAM THICKNESS:
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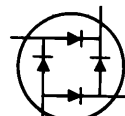
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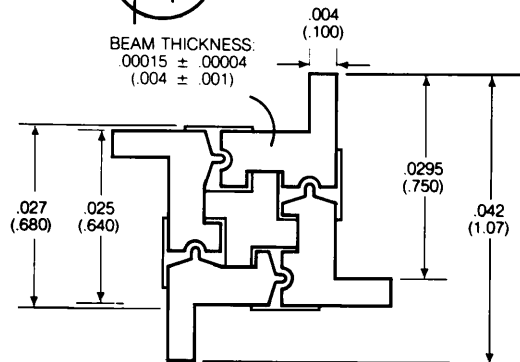
$.004$
 $(.100)$
 4 PLACES
 BEAM THICKNESS:
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 $(.004 \pm .001)$



STYLE 721



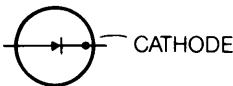
BEAM THICKNESS:
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 $(.004 \pm .001)$



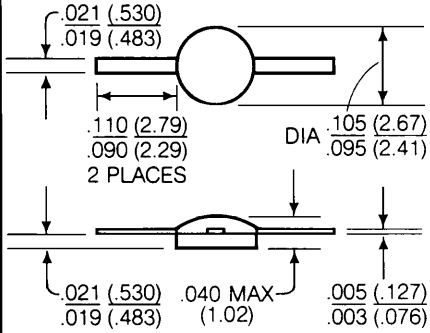
DIMENSIONS ABOVE ARE IN INCHES WITH MILLIMETERS IN PARENTHESES

PACKAGE STYLES

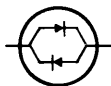
STYLE 800



TOP VIEW

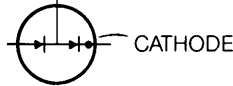


STYLE 801

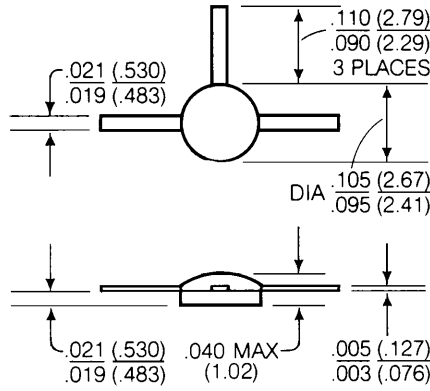


TOP VIEW

STYLE 802



TOP VIEW

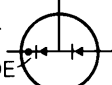


STYLE 803



TOP VIEW

STYLE 804

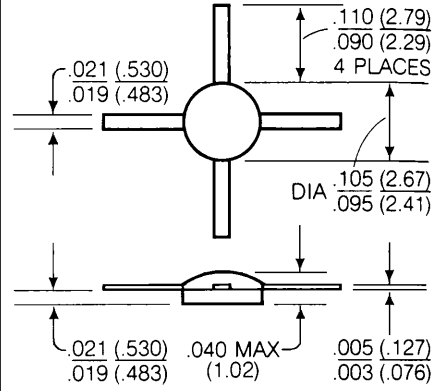


TOP VIEW

STYLE 805



TOP VIEW



STYLE 806

COMMON CATHODE



TOP VIEW

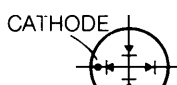
STYLE 807

CATHODE



TOP VIEW

STYLE 808



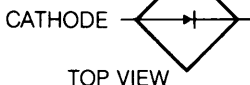
TOP VIEW

STYLE 809

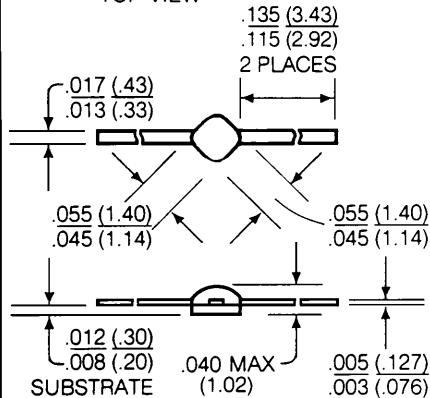


TOP VIEW

STYLE 820



TOP VIEW

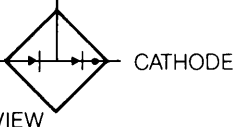


STYLE 821

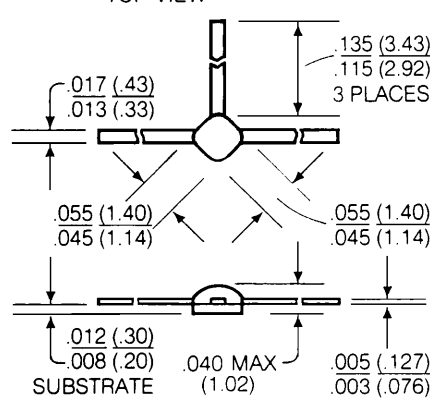


TOP VIEW

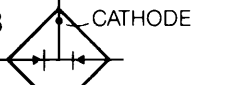
STYLE 822



TOP VIEW

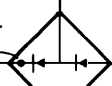


STYLE 823



TOP VIEW

STYLE 824

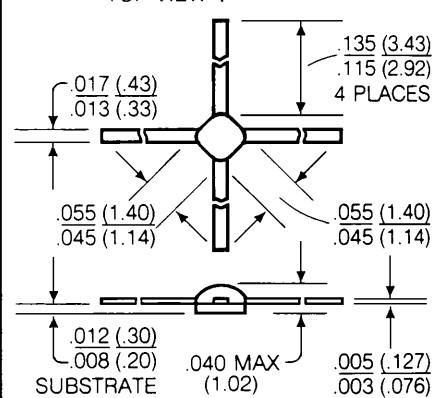


TOP VIEW

STYLE 825



TOP VIEW



STYLE 826

COMMON CATHODE



TOP VIEW

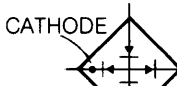
STYLE 827

CATHODE



TOP VIEW

STYLE 828



TOP VIEW

STYLE 829

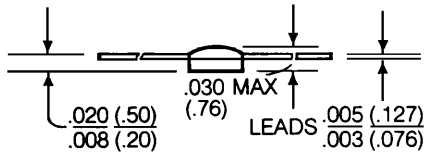
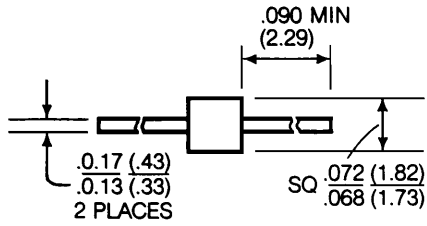
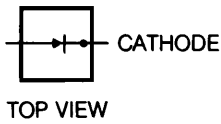


TOP VIEW

DIMENSIONS ABOVE ARE IN INCHES WITH MILLIMETERS IN PARENTHESES

PACKAGE STYLES

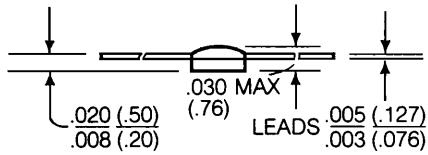
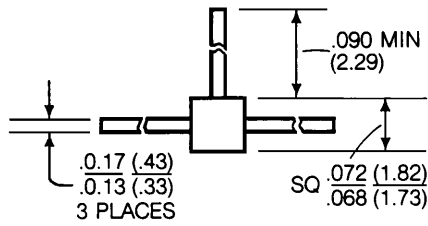
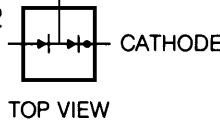
STYLE 850



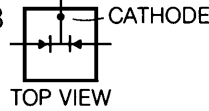
STYLE 851



STYLE 852



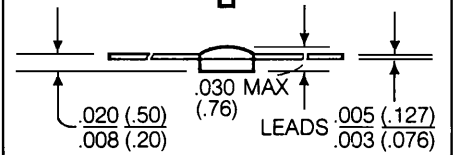
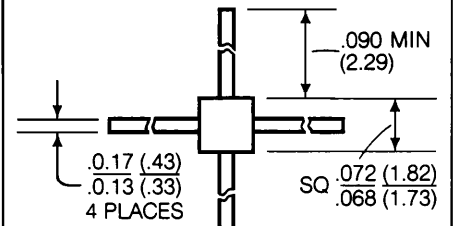
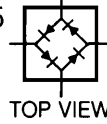
STYLE 853



STYLE 854



STYLE 855



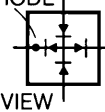
STYLE 856
COMMON CATHODE



STYLE 857
CATHODE



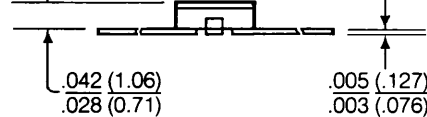
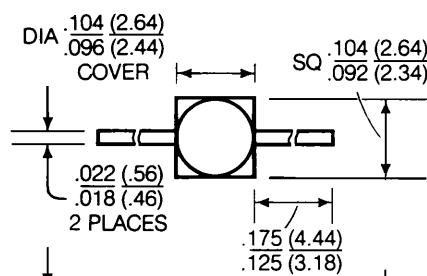
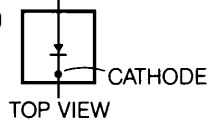
STYLE 858
CATHODE



STYLE 859
CATHODE



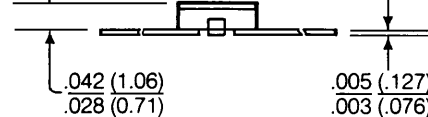
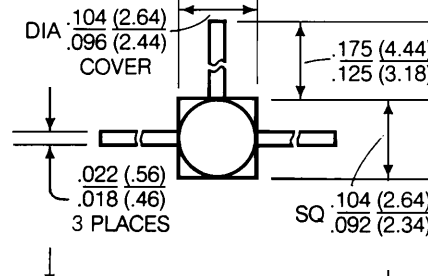
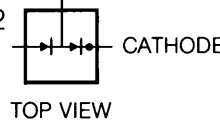
STYLE 860



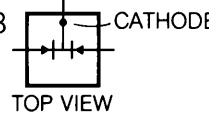
STYLE 861



STYLE 862



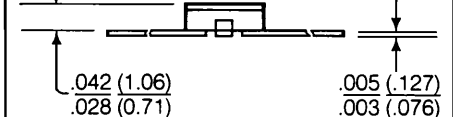
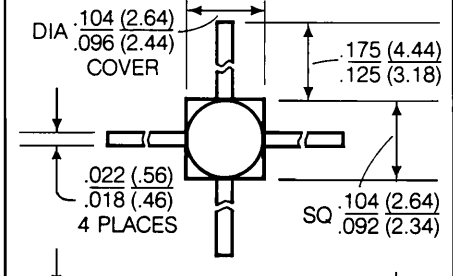
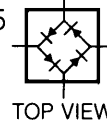
STYLE 863



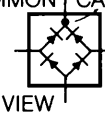
STYLE 864



STYLE 865



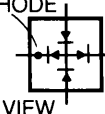
STYLE 866
COMMON CATHODE



STYLE 867
CATHODE



STYLE 868
CATHODE

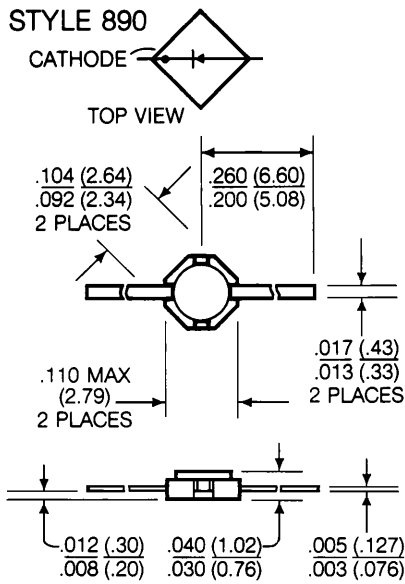


STYLE 869
CATHODE

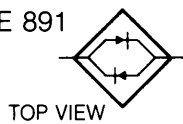


PACKAGE STYLES

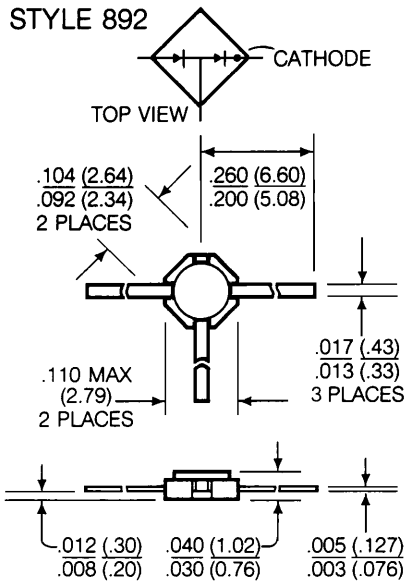
STYLE 890



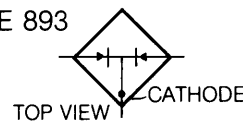
STYLE 891



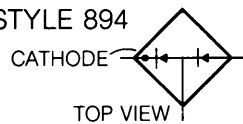
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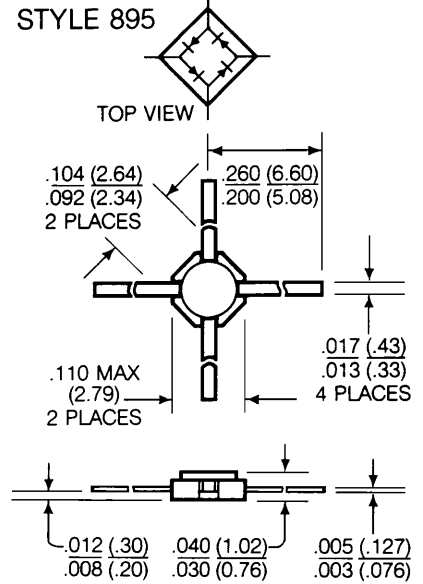
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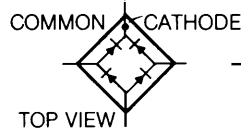
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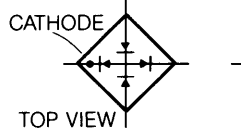
STYLE 895



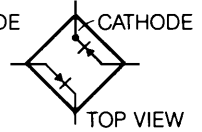
STYLE 896



STYLE 898



STYLE 897



STYLE 899



DIMENSIONS ABOVE ARE IN INCHES WITH MILLIMETERS IN PARENTHESES

NOTES:

1. All of the beam lead devices are also available in chip form.
2. When ordering add the three 3-digit package style suffix, i.e. ABM9001-720 is a medium barrier 6.5dB X-band monolithic ring quad.
3. $\Delta V_F @ 1mA = 10mV$ for beam lead pairs
 $\Delta V_F @ 1mA = 15mV$ for beam lead ring quads and bridge quads
4. $NFI_F = 1.5dB$; $I_F = 30$ MHz; $R_L = 100$ OHMS; L.O. = 1mW (for low and medium barrier types); L.O. = 2.0mW (for high barrier types); S-band = 3060 MHz; X-band = 9375 MHz; K_{μ} -band = 16000 MHz.
5. Series resistance, $R_S = R_T - R_B$ where R_T = total resistance measured across the diode; R_B = barrier resistance, which equals 2.8 OHMS for Schottky Barrier Diodes measured at +10mA.
6. C_J , junction capacitance is measured at $V_R = 0$ volts and $f = 1.0$ MHz.



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